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MILITARY PSYCHOLOGY –

ITS ROLE IN THE GROWTH OF PSYCHOLOGY

IN AUSTRALIA

by

COLONEL W.H. HALL

and

CAPTAIN J.L. EAVES

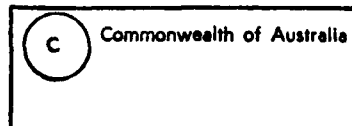# 1st PSYCHOLOGICAL RESEARCH UNIT

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16. Abstract

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Abstract

Perhaps no other organisation has been as inextricably linked with the growth and development of psychology as the military. The military has actively initiated and directed research that has shifted the focus of psychology itself. The sheer magnitude of military human resources serves as a fertile ground for the examination and application of scientific theories and processes. This paper highlights the growth and vitality of military psychology by providing an overview of its research and operations. While the predominant emphasis during wartime was on selection, the accomplishments in this area have bolstered the perception of psychology as a valuable science which has produced practical results of immediate utility. Military psychology has broadened its horizons since World War II. Military psychologists provide professional support and advice to various academic institutions, other government departments and research agencies both in Australia and abroad. Australian military psychologists currently collaborate with their counterparts in allied forces in the areas of military manpower trends; training technology; and human factors in man-systems integration. The field of psychology has witnessed the growth and development of entire areas driven by military requirements. Indeed many former military psychologists are at the forefront of the profession in Australia. Today, through past successes and increasing military needs, the "growth potential" for military psychology is considerable.

Despite the fact that the term 'military psychology' has no official definition in the Services, it is frequently used generically, for example, military psychology is the application of psychology to solve special types of military problems. The World War II classic, "Psychology for the Armed Forces" edited by Boring (1945) states "Psychology is a point of view..... what is sometimes called military psychology has resulted simply from bringing the psychological point of view to bear on military problems." This generic view is not unreasonable, since almost the entire range of applied psychology is employed in various forms by the military. However, this approach tends to regulate psychology to a technology and military psychology cannot be defined by a common set of techniques (as is experimental psychology) nor by a common set of problems (as is developmental psychology), but rather by the area or context of application - the military. Military needs reflect concerns similar to those of civilian institutions, only magnified. The orientations of psychologists involved in military psychology are representative of psychologists who work in civilian sectors. Military psychology clearly coexists with all psychology, yet the sheer magnitude of military human resources provides a test-bed for the examination and application of psychological processes; to that end, the military acts as an impetus to initiate and direct research and innovation in psychology.

Development

The use of psychological testing in the Armed Forces dates back to the US Army testing programme during World War I. Between World Wars I and II the German Army made some use of psychologists and by 1939 many other countries in Europe and North America included testing in their personnel management systems. Its introduction in Australia as an accepted regular procedure did not occur until 1941, brought about not so much as a result of internal Service initiatives, but because of precedent in other allied countries, notably Britain, and persuasion by Australian psychologists.

In late 1940, high failure rate in flying training, and the example of British precedent, influenced the RAAF to accept the representations of G.F.K. Naylor, then senior psychologist of the Australian Institute of Industrial Psychology, to introduce psychological procedures for pilot selection. The system Naylor adopted based selection solely on a battery of validated psychological tests and was ultimately extended to selection for a wide range of airmen employments. In 1943, J.F. Clark of the New South Wales Vocational Guidance Bureau was also appointed to the RAAF to direct research into training methods, flying problems and vocational guidance for post-war resettlement.

The Army, following representations by civilian psychologists, set up an Advisory Committee in 1941 to report on the application of psychological techniques to Army problems. In 1941, H.L. Fowler, Associate Professor of Psychology at the University of Western Australia, was called on to form a psychological organisation, and psychology testing units were set up throughout Australia. Fowler retired early and was succeeded by J.V. Ashburner - a psychiatrist. The duties of the psychologist included examination of soldiers for job allocation and reallocation, investigation of the problems of military delinquency, clinical examination at the request of psychiatrists, advice to officer pre-selection boards, and vocational guidance of soldiers being discharged.

It was not until 1944 that the RAN appointed R.L. Want, a psychologist in private practice, to set up a vocational guidance service for members being discharged. This work did extend into selection for certain RAN job specialities but its scope in no way matched that of the Army and RAAF.

During the war, Service psychologists were a uniformed corporate part of the organisations in which they served. After the war, as the massive rehabilitation programmes developed, the vocational guidance functions of the psychology services were taken over by the then Department of Labour and National Service (now Employment Education and Training). The RAN and RAAF psychology services were disbanded. Only the Army retained a skeleton structure of uniformed psychologists primarily engaged in examining recruits for occupational duties.

The Army still employed psychologists to test and advise on selection of applicants for the Royal Military College (RMC), continuing a practice instituted during the war. This function may well be regarded as the first formal use of psychology by the Armed Services in a peacetime role.

At the war's end the future size, structure and role of the Armed Services was not clear. Once the government decided that there should be substantial permanent Armed Forces, psychologists were appointed to assist in their formation. As in wartime, each psychological service was formed and developed separately.

The period 1946-1953 was one of considerable strain for the Armed Services as they needed to recruit extensively for their expanded regular forces when industry was also developing rapidly and manpower was in high demand. Those applying for enlistment included a disproportionate number of men of apparently lower quality. Psychologists, particularly in the Navy and the Army, were largely involved in advising on enlistment suitability, placement and disposal of men whose abilities and attainments were marginally suitable for the training and tasks they wished to undertake. Their decisions were based on psychological tests and clinical interviews and were negative in orientation, i.e. rejection of those with limited probability of succeeding in the position for which they had applied. To support this system, their professional services extended to advising on problems of morale, training, service adjustment and mental health in general. In fact, by 1952 most of the functions performed by psychologists during wartime had recommenced and in most cases were extended.

In 1951 the Forces were committed to the Korean War and the demand for suitable manpower became even more pressing. In 1952 the Minister of Defence directed that a combined Services selection procedure be introduced for screening recruit applicants. This development signified a watershed for the psychological services, separating the introductory period from one of consolidation. Perhaps more important for the profession of psychology in general, these efforts bolstered the perception of psychology as a valuable science that could produce practical results of immediate utility. Not only was the field of military psychology firmly established but the profession of psychology came of age in terms of recognised practical contributions and also in terms of the creation of demand for psychological services.

Since then, psychology has become increasingly integrated and formalised into the military. This relationship has proved mutually profitable. The military serves as a fertile ground for the examination and application of psychological theories and processes, but also, the military actively initiates and directs research that shifts the focus of psychology itself. Accordingly, entire research areas have developed in response to military requirements, including areas such as human factors, computer adaptive testing, stress management and aviation psychology. In other instances, military needs have refocused psychological interest on certain spheres of behaviour. For example, research into attitude surveys, group morale and leadership. The problems on which psychological advice is given to military authorities range from hair length, through editorial policy for Service newspapers, retention of soldiers and officers, race relations in developing countries, to homosexuality, drug abuse and self injury. The purpose of listing some elements of military psychology is appropriate to emphasise the great diversity of uses to which psychologists are put and consequently, to the great variety of projects, they must engender by their associations. In the following sections, areas where significant work has been conducted in the military will be examined; these categories are by no means exhaustive. The approach, which necessitates omitting discussion of substantial areas that have made significant contributions to the military reflects a need for brevity rather than comprehensiveness. Neither are the categories exclusive; in many cases it is difficult to treat studies as isolated when their outcomes all lead to the effective utilisation of personnel.

Personnel Selection and Classification

One of the most enduring effects of the War testing programme lies in the impetus given to aptitude testing. The Army's testing programme was the first by any large organisation, public or private, to measure the capabilities of all its members and to allocate them accordingly, or, in the case of officers, to appoint or promote them. Approximately 8,000 new applicants enter the Armed Services each year. Each of these individuals is initially selected for the Service, then allocated to a military trade, trained, and placed in a direct, indirect, or supporting job relating to the Service as a whole or to a specific weapon system. The initial objective of general entry selection is to differentiate those who can learn to be proficient Servicemen and women in a reasonable length of time from those whose learning capacity is below military expectations. Determination of minimum literacy requirements and development of aptitude measures not dependent on high literacy levels are basic requirements. There is a continuing test development programme in which criterion scores are established for accepting, rejecting or allocating applicants to special training. Other selection procedures utilize tests to select personnel for highly technical military courses, officer training, Service police and overseas Service to name a few.

Military psychologists have conducted studies on biographical data collection in a structured interview format (Armstrong, 1979) as well as acturial versus clinical decision-making in selection (Ritchie, 1984). Additionally, research and development assets are dedicated to computer adaptive testing. Extension and improvement of pre-enlistment testing procedures is one of the continuing responsibilities of the Army's dedicated psychological research facility. Additional tasks of this unit include evaluation and validation of classification procedures, development

of tests of specialised skills (or trade tests) and regular norming of tests. The unit also has a strong affiliation with the Australian Council of Educational Research (ACER) and comparable facilities overseas. It has frequently provided data bases and norms for a variety of tests, both cognitive and non-cognitive as well as seconding psychologists to Australian and overseas organisations for training and professional experience.

Prior to the granting of Independence to Papua New Guinea, the Australian Army Psychology Corps operated two units there; a unit dedicated to research and a general support psychology unit. In Papua New Guinea there existed an indigenous army regiment known as the Pacific Islands Regiment (PIR). Recruits for the regiment came from all tribes and localities in the Territory and it was estimated that they cover over 700 language groups. Many recruits were totally illiterate and spoke no English. Some did not even speak one of the two common languages, Melanesian Pidgin English or Police Motu. The problem was how to select those recruit applicants who would be able to cope with military training. Initially, too many recruits were failing recruit training and being discharged from PIR as unfit for military training. The cost of failure was high in both financial and psychological terms. Training failure costs to the Army included the cost of training, wages, equipment, clothing and an airfare home for the soldier. To the individual an unsatisfactory performance meant a loss of 'face' with his fellow villagers.

Due to these difficulties Australian Army psychologists were tasked to provide assistance in establishing psychological testing as part of the selection procedure. An essential requirement in transcultural testing is that the test must be 'valid' in some sense, in the culture in which it will be used. A psychologist seconded to the University of Queensland constructed a recruit selection test which became known as the PIR Test (Ord, 1957). Throughout his work Ord concentrated on checking empirical test validity in relation to general educational and training criteria. Once the test battery was developed, the wastage rate from recruit training was reduced to a negligible amount (Kearney, 1966). Consequently, considerable reliance was placed on the role of the psychologist in selecting personnel for military training. Military psychologists' presence and expertise provided an important and substantial role in the development of the Papua New Guinea Defence Force (PNGDF) and in the setting up of the New Guinea Psychological Service. Today the strong links between the military psychologists of the two countries continue. Support provided from Australia includes advice in the selection of pilots for the PNGDF and professional exchanges and secondments.

There is an increasing concern for the defence of the northern perimeters of Australia (Beazley, 1987). The particular attributes of the local aboriginal people and Torres Strait Islanders make them an invaluable asset to the on-ground surveillance system. In assessing the suitability of these people for military training their markedly different cultural background and upbringing rendered traditional western pencil and paper tests inappropriate. The measurement of potential ability needed to be assessed in the knowledge of the Aborigines' and the Islanders' own internalised cultural experiences. Army psychologists have conducted research using the Queensland Test (a derivative of the PIR Test (Kearney, 1966)) to assess aboriginal and Torres Strait Islander applicants for entry to the Army Reserve (Kelley, 1979, 1983).

In 1959, the Antarctic Division of the Department of External Affairs sought the assistance of Army psychologists in selecting winterers for the Australian National Antarctic Research Expedition (ANARE). Apart from establishing a selection procedure, a methodology which allowed the continual validation of selection procedures against expeditioner performance was introduced (Owens, 1974). Part of the assessment procedure includes the administration of the 16PF (Cattell, Eber and Tatsuoka, 1972), yielding scores on a series of personality dimensions. These data are accumulated by Army psychologists and analysed to provide statistical summaries and population norms. Since Owens' extended series of projects, major projects have been undertaken by Craig (1978) and Godwin (1985). Army psychologists have also acted in a consultant capacity to the Antarctic Division in matters concerning selection, training and management of expeditioners.

The military is one of the largest employers of labour in the nation and current research in the military focuses on managing this large personnel system. Future personnel requirements must be projected; personnel resources must be identified; and personnel recruited and allocated to an employment category. The match between job requirements and individual capabilities must be assessed and effective performers identified. To increase the ability to place the right person in the right job, the military is committed to developing manpower and personnel systems that link selection and classification to job performance. Advances in technology and the development of increasingly complex military systems have emphasised the importance of capable, safe operators. Nowhere is this more evident than in military aviation. Highest quality training practices are only worthwhile if supported by accurate, specialised personnel selection. The aim in the RAAF Psychology Service is to reduce expensive training failures through progressive refinements in the selection methods. A multi-faceted approach is being implemented for pilot selection in an attempt to better identify the very rare yet highly complex mix of physical, mental and emotional attributes which make for a good operational pilot. As well as research embracing the traditional instruments such as the 16PF (Cattell, Eber and Tatsuoka, 1972), the Eysenck Personality Inventory (Eysenck and Eysenck, 1975), the Minnesota Multiphasic Personality Inventory (Graham, 1977) and Nideffer's Test of Attentional and Interpersonal Style (Nideffer, 1977), RAAF psychologists have been investigating a number of 'new' selection procedures with the aim of improving selection methods for the next generation of pilots. Primarily developed overseas, they cover both the cognitive and non-cognitive attributes of the pilot applicant. These new procedures include the Defence Mechanism Test (DMT), a projective personality test developed in Sweden for aviation use; the United States Airforce's Portable Basic Attributes Test (PORTA-BAT), which computerises several conventional as well as newly developed aircrew aptitude tests; and the Mental Agility and Stress Tolerance Assessment (MASTA) (Hayward and Lowe, 1987).

Army psychologists have conducted considerable research into the assessment centre approach to officer selection, for example, Salas (1970) and Hodge (1989). They use a modified form of the War Office Selection Board (WOSB) which was introduced to the British Army in 1942. The WOSB was initially used by the Australian Army in 1943 to help select prospective officer cadets for wartime Officer Cadet Training Units (Gibb, 1946). It was reintroduced in 1954 to select candidates for the RMC and is now used in various forms for the selection for Navy and all Army officer training institutions; a circumstance which implies a measure of the satisfaction with its operation. Its use in one form or another spread to

the United States (Office of Strategic Services; OSS), the French, Belgian and Indian Armies, para-military organisations, e.g the Palestine Police, civilian departments such as the Indian Office, the British Civil Service, the National Fire Service and the National Institute of Industrial Psychology (Vernon, 1964) and in industry. Ord (1969) reports the application of a variation of the WOSB procedure in assessing the career potential of Papuan and New Guinean medical graduates and of another, shorter version applied to the assessment of police cadets and also to the selection of agricultural assistants in the same territory. Ord goes on to point out possible future uses for appropriate versions of the WOSB in a number of other organisations in PNG. The Australian Army adaptation of the WOSB is probably unique in its mix of emphasis on general adjustment factors and particular skills (Hodge, 1989). Naturally, the Army is looking for evidence of the skills in embryo, since most candidates are assessed during adolescence and it is intended that selection will be followed by training to develop officer skills.

As mentioned previously, areas of military psychology are most certainly not exclusive. Studies into the selection procedure for Service officers has led to considerable research into the area of leadership. Leadership personality research has had a chequered career. Before World War II such studies enjoyed popularity when psychologists searched for a set of traits which would identify individuals who would become good leaders. After the War, interest in this area waned when it became apparent that research had failed to demonstrate unique leadership qualities that are invariant from situation to situation. Research into styles of leadership has been dominated in the military by a series of distinctions among different types of leaders. Contemporary military thinking has moved rather sharply away from the overly simple notion that a global measure of leader style could by itself account for any substantial amount of the variance in subordinate performance. Nonetheless, leader style continues to figure largely in applied military settings and research in these areas provides different organisations with various concepts of leadership and the possibility of labelling and objectifying an otherwise confusing diversity of behaviour (Graco, 1981).

Advertising is a significant part of recruiting for the Services and the key to successful recruitment is to make the Services relevant to the community. Recently a survey was developed to examine the influence advertising had on Army applicants and whether the information received from advertising was realistic (Eaves, 1989). In addition the survey was developed to monitor changing attitudes, allowing campaign strategies and procedures to be adjusted before ineffective advertising reflected itself in poor recruiting results. This is an example of marketing psychology which serves to highlight the variety of work in which military psychologist are involved.

Training

In the dynamic situation in which the military psychologist operates there is a constant factor: training. Regardless of peace or war and technological developments the requirement to train is a consistent element in the military. Training in the military is costly for several reasons. First is the diversity and complexity of jobs for which the Armed Services must train. For example, the Australian Defence Force offers employment in some 300 distinct work categories (Cross, 1988). While that presents great opportunities for career satisfaction, it places

considerable demands on training requirements. A second reason is the large number of people involved - there are currently 70,000 uniformed regular personnel and 40,000 in the reserve forces. Finally, there is only a short period over which the cost of training can be amortized, because many receive initial specialised training and are available for only a short enlistment, the high attrition rates, and the continual introduction of new systems makes retraining mandatory.

In World War II, training quickly became a priority issue as it became apparent that thousands of personnel were needed to operate and maintain equipment that was multiplying in variety and complexity. Personnel were not available in the general population with the requisite skills in desired complex tasks. At this time, many procedures used in training had face validity, but there was little evidence of whether training produced the desired results. Psychologists endeavoured to discover the extent of the training effectiveness of different methods. In retrospect, although this is not an overly impressive achievement, these were innovations that the Armed Services implemented and used extensively. Military psychologists pioneered the production of manuals containing lesson plans, the development and use of instructional media such as the overhead projector and sound-slide programmes. They implemented research to evaluate the effectiveness of training procedures and reported that many assumed learning principles had to be examined more closely before they could be successfully applied to training. For example, it was found that practice did little to improve the proficiency of aircraft gunners. To address these problems, the military psychologist argued the importance of principles such as task analysis and part-task training; analysing complex tasks into component tasks; ensuring mastery of component tasks; and sequencing of subtask learning to ensure transfer to the target performance. Principles of task learning have now become institutionalised in military training.

This "systems approach" to training (Bate, 1976) requires that careful job analysis be performed to produce specific objectives for training and that training material be developed on the basis of relevance to those objectives. The training model which is used, in slightly differing forms, by all the Armed Services involves job and task analysis to determine training requirements, training design, development of instructional activities and implementation and evaluation.

Today, the military services must train personnel to operate, repair and maintain increasingly complex equipment. Further, the military must prepare personnel to perform under adverse operational conditions. The military must train basic skills (such as maths skills), military skills (such as marksmanship), and specific job skills (such as electronics). Individuals must be trained to work together in small teams and in larger integrated units. Also, individual and collective skills must be maintained over time. The scope of this is one reason why the military psychologist is becoming increasingly interested in the emerging computer-based training technologies.

Parallel to the development of psychological systems techniques for selection, classification and training has been the accelerated development of training technology. The objective of training technology - an interdisciplinary blending of engineering, psychology and education - is to optimise training effectiveness while minimising costs. With equipment costs soaring, the cost of training directly on equipment often becomes prohibitive. Hence, in many training situations, ship, vehicle, aircraft and weapons systems simulators are being extensively employed. Such

facilities lower training costs and usually offer analysis of performance which is unobtainable from the original equipment. If a trainee runs the Bridge Procedural Simulator aground or has a crash in an F/A 18 Simulator, there is no damage to the equipment or the operator. Such devices are developed under direction from psychologists to optimally use many of the principles of human learning, such as: knowledge of results; whole learning; meaningfulness or close correlation between the material being learned and the actual job to be performed; motivation due to realism and ability to vary or distribute practice. It has long been accepted that psychologists have a major contribution to make to the design of training methods and instructional technology.

Education and training programmes play a vital part in developing the human skills necessary in an efficient Defence Force. Because of the increasing sophistication of weapon, information and support systems, there is a parallel increasing pressure for innovation in training to cope with the demands of a changing technology and environment. Further pressures come from problems of finance and manpower pools. As a result, there is a need for a strong research effort to provide baseline data necessary for the development of cost-effective military training programmes. Research is currently undertaken to provide direction to efforts in support of technical training, formal education, on-the-job training, design and use of instructional systems and systems engineering. Research focuses on areas relevant to the design and evaluation of instructional methods, media, and systems; research on computer-based instruction, simulation and gaming, performance measurement, instructional systems design methodology; basic research into human motivation, learning retention, transfer of training, auditory and visual information processing, skill degradation; and designing operational systems with regard to their human resources impact.

A specific example of this, gained from our collaborative research with the United States is the development of new methods of unit and team training by the U.S. Army (Wardlaw, 1981). The U.S Army identified training of small units using tactical engagement simulators as one of its highest behavioural science priorities. Such simulations are characterised by a two-sided free play tactical exercise, objective and realtime casualty assessment, simulation of all weapons signatures, and reconstruction of tactical exercises. Comparisons between simulator-based training and conventional training indicate that simulator-based training is valid and is superior to conventional training in motivating the individual soldier participating in such training.

This research is leading to highly significant advances in effectiveness of team and unit training. In the Australian Army an evaluation model to determine deficiencies in training has been developed and used successfully (Wardlaw, 1981). Essentially the employment of collective training objectives for use in evaluating exercises has been the main vehicle for improved evaluation. However, as standards become more refined the adoption of other techniques, such as simulator-based training has assisted in the detection of performance deficiencies to a marked degree.

Human Factors

        Selection, classification and training are inseparable in the
military service. When related to the current generation of weapon
systems, the four factors form an integrated dynamic system. One area that
has received increased emphasis is human factors in man-systems
integration. The operational effectiveness of a person-machine system is
dependent not only on hardware but also on the capabilities and limitations
of the human component. The field of aviation provides a strong impetus to
the consideration of human factors, largely because the failure to do so
exacts such a penalty. Military psychologists have made a number of
important contributions in this area.

        Today's pilot is part of a complex and integrated flight system.
The shift towards automation of aircraft functions has changed the role of
the pilot from one of manual control to one of flight system management.
The examination of automation and the allocation of system functions must
be considered in terms of human performance capabilities. Experience
during World War II highlighted the requirement for the equipment designer
to take account of the human operator in the design and development of
systems. Awareness that human factors design inputs could have substantial
effects on overall system performance caused the development of a systems
approach to design. As our ability to develop large scale systems has
increased the design process has become more complex. It has become
necessary to attempt to predict at the conceptual stage, the way systems
will actually perform (Manton, Copas and Triggs, 1985). The relevant
factors that contribute to system effectiveness need to be integrated into
the design process. Just as neglect of one of the various branches of
engineering may compromise the design, failure to take account of human
factors will almost certainly decrease system performance.

        Following World War II a great deal of effort was directed
towards developing specifications for the design of military equipment.
Such specifications describe the capabilities and limitations of the human
operator and relate these factors to the design of controls, displays,
workspace layouts and the physical environment. It became apparent that
human wizardry alone did not solve all the problems of training systems
development and that, in fact, such complexity made the job of the military
psychologist more critical. Gradually the work of the psychologist has
changed from adapting old equipment for more efficient use to participation
in the design of new devices (Manton, Copas and Triggs, 1985).

        Perhaps the most important contribution of human factors and
engineering psychologists to the military is the demonstration that the
person-machine system, rather than the machine alone, is the fundamental
military unit. The work of human factors psychologists has subsequently
become critical in the military as technology has advanced and systems have
become more complex. The Australian Army's Military Employments Research
and Information Team (MERIT) foresaw this trend when they conducted an
evaluation of the Leopard tank in order to provide data to develop a
comprehensive safety package for this vehicle (Wardlaw, 1981). A multi-
disciplinary approach was used to study noise, vibration, operational
toxicology and general human engineering.

        In 1946, Bray stated that "in the future, new devices must be
considered in terms of personnel requirements before production begins"
(Bray, 1946; pp viii). This goal has often been the ideal rather than a
standard practice, although the military is currently experiencing a

renewed effort to maximise manpower considerations early in the design phase of systems.

Clinical Psychology

It has been indicated in discussion of the foregoing section that there is an increasing awareness of the need to select men for complex, new battlefield environments and to design items of equipment to make them as simple and as easy to operate as possible in the context of the complex functions they are designed to perform. It is obvious, however, that whatever steps are taken to alleviate problems in these areas, the military is still left with the human consequences of operating on the modern battlefield. New skills are required, new responsibilities are apparent, and new doctrine forces operations of a different type from those most common in the past. Nowhere are these problems more apparent than in the area of continuous or extended operations. A considerable amount of research has been conducted, mostly in the context of sustained operations. On the whole, this research by Australian military psychologists has sought to determine the effects on performance of such factors as sleep loss, activity levels, various environmental stressors, workload, and nature of task, either in isolation or in combination.

The increased destructiveness of modern weapons and the conditions and styles of modern warfare have significantly heightened the levels of stress faced by soldiers in combat. In many cases, the exposure to combat stress may cause a number of behavioural and psychological reactions in soldiers which render them ineffective as members of combat units (Wardlaw, 1984, 1988). Experience from many wars has shown that battle stress casualities can constitute a significant proportion of all battlefield casualities and that proper handling of them can result in their rapid reinstatement to active service; Army psychologists are currently involved in studies into the prevention and management of combat stress reactions.

Apart from battle, it may be questioned as to the relevance of such studies for a Service environment. However, there are at least two situations in which Army personnel may become involved in traumatic situations in the course of their duties. One is being part of or witnessing traumatic events whilst on war service or on peacekeeping duties. The second is that the Services are often tasked to provide aid to the community in time of natural disasters. It is expected some personnel will be affected by a post-crisis stress reaction which will have a negative impact on both their personal and Service lives. Military psychologists deal with such reactions through briefing, de-briefing and counselling services for personnel engaged on potentially traumatic duties.

Counselling is an activity which military psychologists perform in a number of different contexts. Student counsellors at the various military training establishments carry out clinical assessments and counselling of students experiencing difficulties on their courses and whose progress is considered unsatisfactory. Areas that are frequently involved include assessment of leadership under physical and mental stress; vocational rehabilitation of combat veterans; career counselling; body image and self-esteem; and obesity and studies into the effects of life events stress (Hall, 1986).

Management Psychology

Military psychology has been responsive to significant social issues as they have arisen in the Department of Defence. A good example has been the debate about the role of women in the Australian Armed Services. Women represent about ten per cent overall of the Armed Services personnel; and theoretically, they are in equal competition with men for training, postings and promotion. The Defence Forces however are exempt from the Sex Discrimination Act. Currently women are excluded from combat and combat related positions. In order to provide research data for policy makers, Defence sponsored studies by an Army psychologist into the career intentions and attitudes of Servicewomen (Quinn, 1986, 1989).

Another field of continuing interest in military psychology is the problem of community relationships of military personnel and their dependents. Prior to the move of the Army Apprentice School (AAS) to Bonegilla, Victoria a sociological impact study was undertaken (Martyn, 1978, 1979); (Martyn, Brady and Knox, 1979). Extensive sociological studies were performed by consultants for the RAAF, in the course of planning for the development of the new Tactical Fighter Force base at Tindal, near Katherine, Northern Territory. Bonegilla and Tindal constitute the two major new Defence facilities in the past decade, and the only ones for which the sociological implications of the relocation had been studied.

Recently, the Australian Army (Bollen, 1989) carried out a preliminary feasibility study into the personnel and sociological implications of the possible move of a sizeable military force to the Northern Territory. The study showed that such a move could have major implications for Army personnel policies, for local community attitudes towards the military and for government and private infrastructure development. While the location of military bases is inevitably driven by strategic considerations, in peace time, personnel implications (including military families) are particularly important. A facility located in a remote area without any compensations could dramatically increase wastage with attendant demands on the recruitment and training sides of the organisation. Psychological techniques such as attitude surveys have assisted planners and managers in understanding the magnitude of possible future problems.

In recent years increasing attention has been paid to information gained from personnel survey research techniques and the Army has sponsored a longitudinal survey into soldiers' attitudes and opinions (Reynolds and Hall, 1987; Richardson, 1988). This project gives a view of soldiers' opinions at a particular time allowing monitoring over time of various aspects of Army life. The results are intended to help those involved in making decisions which affect soldiers' pay, welfare and conditions of service as well as providing information on factors influencing the retention of personnel in the Army. In the past five years there has been an increase in the numbers of personnel leaving the Australian Defence Force. Many of those leaving have been from occupational areas which involve long and expensive training such as pilots and technical experts. Defence Force wastage can be seen as an expression of dissatisfaction with the organisation, but it can also be simply precipitated by external market forces offering a higher price for skills which are in short supply in the community. Military psychologists are conducting extensive surveys of those leaving, (Hodge, 1988; Bollen, 1988; Salas, 1989) in an endeavour to provide management with an understanding of this phenomenon so that plans and policies can be formulated to ameliorate its effects.

Summary and Conclusions

A sense of vitality of military psychology can be gleaned from the many varied and specialised reports that have been produced. This article portrays this growth and vitality by providing a summary of substantive areas of interest in military psychology including selection and classification; training; human factors, clinical psychology and management psychology. These provide the nonmilitary psychologist with an overview of the operations and research pursuits in military psychology.

The growth and development of military psychology has paralleled as well as influenced the growth of psychology in general. This growth is, in part, an offshoot of the increased demand for applied psychological services that followed the success of psychological contributions in World War II.

The relationship between the military and psychology is one of reciprocal exchange. Many recent military products, including simulation and training devices, computerised assessment testing systems, and performance test batteries, have evolved from the application of advances in psychological theories and research. On the other hand, the field of psychology has witnessed the growth and development of entire areas driven by military requirements. Military training research has stimulated advances in civilian vocational and technical training; military selection and classification requirements almost solely defined the advancement of assessment and testing technology; and human factors research in the military has been at the frontier of computer applications and engineering psychology. Indeed many former military psychologists are at the forefront of the profession in Australia.

Today, partly because of such past success and partly because of increasing present military needs, the "growth potential" for military psychology is considerable. The Department of Defence consists of over 100,000 uniformed personnel. One goal of military psychologists is to make sure the Department of Defence gets its value from its investment in these personnel.

The pool of eligible recruits for the Armed Services will shrink in the 1990's. This will have several implications. First, the military will have to compete with private industry to attract and retain personnel. Questions such as quality of life, family issues, and retention of personnel will remain prominent. Second, there will be an increasing emphasis on training to make better use of available human resources. Third, the military will have to create more user-friendly systems that are less demanding to operate and maintain. As the performance and retention of military personnel become increasingly critical, the collaboration between psychology and the military will continue to grow. Psychologists will continue to apply the research techniques and principles of their profession to the resolution of problems driven by military needs.

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